

**INCOMPARABLE**

**15,000 CYCLE  
HALF-TRACK PERFORMANCE  
AT 7½ INCHES PER SECOND**

**NEWEST AMPEX** **MAGNETIC TAPE RECORDER**  
**SIMULTANEOUS ERASE • RECORD • PLAYBACK**  
**MODEL 400**

**Another Great AMPEX First**



## **MODEL 400**

**GIVES HALF-TRACK RE-  
CORDING AT 7½ i.p.s.  
EQUALLING THE PER-  
FORMANCE OF 15 i.p.s.  
FULL-TRACK RECORDERS**

**AMPEX** **MAGNETIC TAPE** **RECORDERS**

**"STANDARD OF THE GREAT RADIO SHOWS"**

***Ampex Fidelity and Operating Simplicity  
Revolutionized Magnetic Tape Recording***

**FULL HOURS**

*(132 minutes)*

**OF PROGRAM MATERIAL  
CAN BE COMBINED ON  
ONE TEN-INCH REEL!**

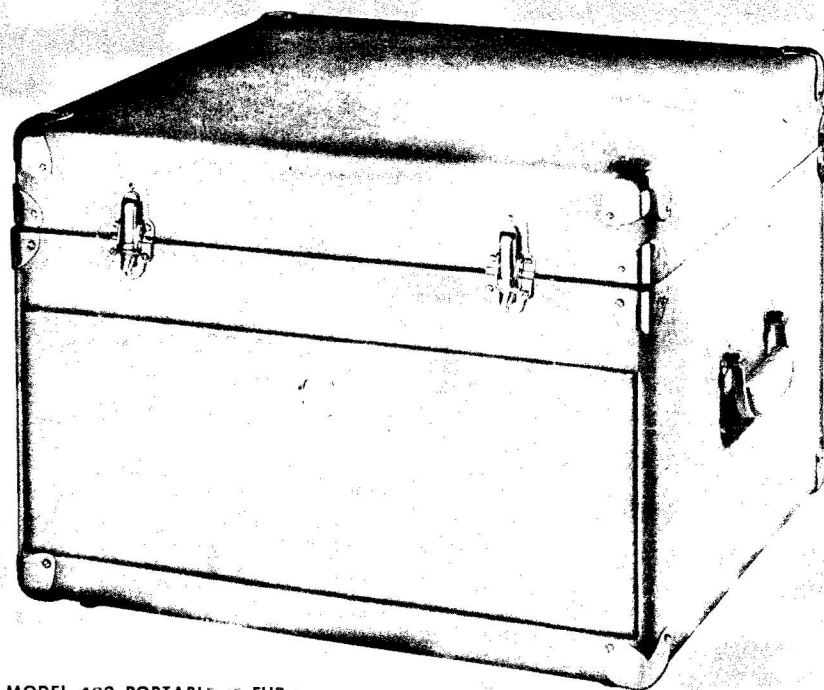
# Critical HALF-TRACK RECORDING AT 15 and 7 1/2 Inches Per Second . . . Tremendous TAPE SAVER!

Ampex Model 400 has been designed especially to provide a fully reliable, high-quality portable recorder-reproducer for the professional and quality-minded non-professional user. Designed and built to the same critical standards that have made Ampex undisputed leader in magnetic tape recording-reproducing, Model 400 is a miracle in compactness and operating simplicity. Many of the proven features of vastly more expensive Ampex Recorders have been incorporated into the pace setting Model 400. In brief, the Ampex Model 400 gives far more than is ordinarily expected in any portable machine in performance, high-fidelity, and simplicity of operation. Many electronic engineers acclaim Model 400 as being several years ahead in the field of half-track recording-reproduction.

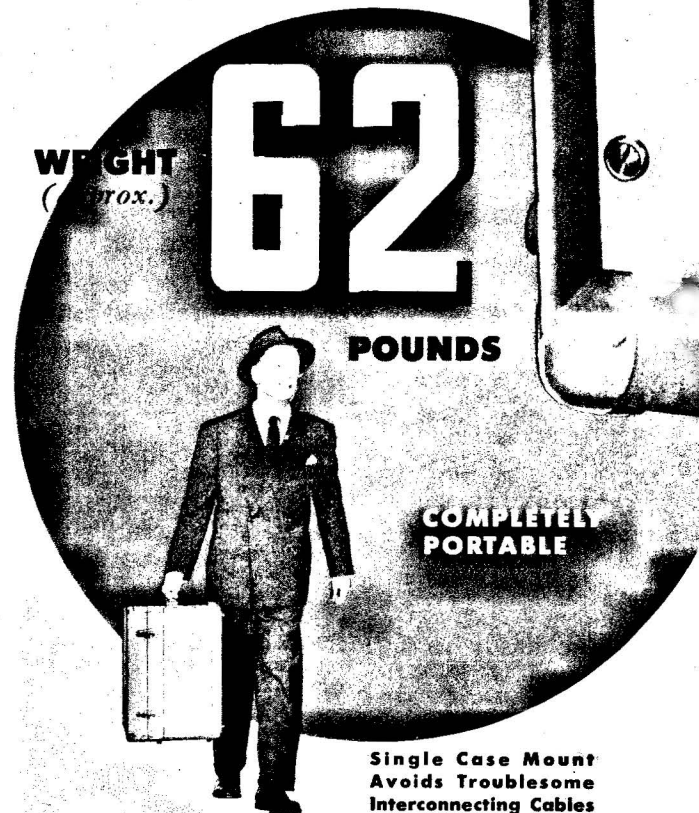
**Gives 4 to 1 Saving in Tape Cost for Comparable Program Quality Over any 15 i.p.s. Single-Track Recorder**

The Model 400 Ampex has been designed to give 15,000 cycle performance at tape speeds of only 7 1/2 inches per second using but one-half the width of the tape. Critical half-track recording at 7 1/2 i.p.s. increases the program capacity of a 2400-foot N.A.B. reel to 132 minutes. Recording of the second track is accomplished by simply flipping the reel over to bring it into position for the simultaneous erase-record-playback (or monitoring) operation. Model 400 has limits of speed variation and dynamic range well suited for the most exacting requirements.

**Available in Studio Type CONSOLE MODELS**



MODEL 400 PORTABLE IS FURNISHED IN A RUGGED CASE HAVING REMOVABLE FRONT PANEL and COVER.



Single Case Mount Avoids Troublesome Interconnecting Cables

Ampex Model 400 can be easily taken to any location where true-to-life recording of field events are to be recorded. Designed for use on 60-cycle, 115-volt current. Split-second monitoring of the program can be accomplished with either a head-set or speaker. Model 400 has been designed to feed, or be used in conjunction with any high-quality power amplifier and loud speaker combination; or standard 600 ohm line (see specifications). Electronic controls for normal operation including VU meter and all cables are located on the quickly accessible front panel.



## CONVENIENT OPERATING CONTROLS

... simplified for the non-trained operator

**OPERATION SELECTOR**—Switch provides for normal forward or fast forward or fast rewind. **SPEED CHANGE**—Toggle switch permits quick choice of 7 1/2 or 15 i.p.s. tape drive speeds.

**PILOT LIGHT**—Indicates electronics power is on. **POWER SWITCH**—Provides independent control for plate power.

**METER & OUTPUT SWITCH**—Position "B" (Level), connects meter "Line Output" plug, and "Phones" monitor plug to the output of the playback for monitoring of playback, while recording or playing back tapes. Position "A" connects "Line Output" plug, and "Phones" monitor plug to the record amplifier for direct monitor of the incoming program. Under position "A" there are three switch positions designated: **LEVEL**—which connects the meter to measure record volume level.

**BIAS**—which connects the meter to indicate proper record bias.

**ERASE**—which connects the meter to indicate proper erase current.

**RECORD GAIN**—Control for adjusting the volume of the incoming program for proper recording.

**7 INPUT TRANSFER SWITCH**—Properly connects input plug for: I) 200 ohm microphones such as R.C.A. 44BX, KB-2C, etc. II) Balanced bridge for bridging telephone lines or balanced studio lines. III) Unbalanced bridge 100,000 ohm input for radio tuner, phono pre-amp, bridging public address equipment or unbalanced studio lines.

**NOTE:** Can be connected internally for use with high impedance microphones.

**8 7 1/2"-15" EQUALIZATION**—Adjusts electronics for proper operation at 7 1/2 or 15 i.p.s.

**9 RECORD BUTTON**—When depressed "Record Indicator" directly above button lights and machine is in recording position. Erase head operates at same time on only that half of the tape which is to be recorded, clearing the tape of previously recorded material or of undesirable magnetic disturbance. Incoming program will be recorded if head housing gate is closed.

**10 OUTPUT LINE TERMINATION SWITCH**—Places 600 ohm terminator across amplifier when same is not externally loaded (This is necessary for proper meter calibration).

**11 RECORD BIAS ADJUSTMENT**—Biased for maxi-

mum output of 1000 cycle tone (factory adjusted).

**12 FOUR-INCH "VU" METER**—Volume level meter used to indicate proper record volume level. This instrument can be switched for several functions as listed under "Meter & Output Switch."

**13 PHONE JACK**—Output provided to monitor with sensitive, wide-range ear phones such as Brush A or A-1, etc.

**14 CHASSIS POWER**—Power switch for electronics.

**15 CHASSIS FUSE**—Fuse for electronics.

**16 TOP PLATE FUSE**—Fuse for all top plate components (motors).

**UNEQUALLED FIDELITY and RELIABILITY**

# AMPEX

"STANDARD OF THE GREAT RADIO SHOWS"

INCOMPARABLE 7 1/2 i.p.s. PERFORMANCE FULLY EQUIV. TO THAT OF 15 i.p.s. FULL-TRACK RECORDERS!



# 3

## MAGNETIC HEADS IN ONE COMPLETELY SHIELDED HOUSING

### SPECIFICATIONS—MODEL 400

**TAPE SPEED.** 15 inches per second and 7.5 inches per second, with motor speed change and equalization switches conveniently located.

**FREQUENCY RESPONSE.** At 15 inches  $\pm 2$ db. 50-15,000 cycles  
At 7½ inches  $\pm 2$ db. 70-10,000 cycles  
At 7½ inches  $\pm 4$ db. 30-15,000 cycles

**SIGNAL-TO-NOISE RATIO.** Over 55 db. at both 7½ inches per second and 15 inches per second, as defined by the proposed N.A.B. standards. By definition, the signal-to-noise ratio is the ratio of peak recording level to the total unweighted playback noise when erasing a signal of peak recording level and in the absence of a new signal. Thus, bias and erase noise are included, as well as playback amplifier noise. All frequencies between 30 and 15,000 cycles are measured. The peak recording level is defined as that level at which the over-all (input to output) total r.m.s. harmonic distortion does not exceed 3% when measured on a 400 cycle tone.

**STARTING TIME.** Instantaneous. (When starting the tape accelerates to full speed in less than .1 second because capstan motor operates whenever power is on.)

**STOPPING TIME.** When playing at 15 inches per second tape moves less than 2 inches after stop switch is operated as mechanical brakes are used.

**FLUTTER & WOW.** At 15 i.p.s. well under .2% r.m.s. measuring all flutter components from 0 to 300 cycles using a tone of 3,000 cycles. At 7½ i.p.s. under .25%.

**PLAYBACK TIMING ACCURACY.** 0.2%.

**PLAYING TIME.** 33 minutes at 15 inch speed on standard N.A.B. reel, 66 minutes at 7.5 inch speed (on each track). The Model 400 will also accommodate the standard R.M.A. reel. The Model 400 Magnetic Tape Recorder is designed to record on only one-half of the standard ¼" wide tape in accordance with R.M.A. standards. By turning the reel over and recording on the other half, twice the amount of program can be stored on a single reel, thereby effecting a 50% saving in tape.

**REWIND TIME.** One and a half minutes for the full N.A.B. reel.

**OPERATION SELECTOR.** Single selector type control lever is used for all modes of operation, namely: Fast Forward, Play, Stop and Rewind. Separate record button energizes record relay, which drops out when machine is stopped. Shuttling back and forth of tape made possible by instantly changing from one mode of operation to the other without stopping in between.

**COMPLETE PLUG-IN-HEAD HOUSING.** Separate record and playback heads are contained in a single plug-in head housing.

**SIMULTANEOUS MONITORING.** Separate record and playback amplifiers and heads allow the tape to be monitored while recording.

**INPUT.** Switch to accommodate either microphone level low impedance input or to bridge 600 ohms plus 4 VU line balanced or unbalanced.

**PLAYBACK AMPLIFIER.** Plus 4 VU output into 600 ohms balanced or unbalanced.

**METERING.** A 4-inch VU meter is mounted on the front panel and provides for:

- Direct monitor of record input signal before or during recording.
- Monitor of recorded output signal from playback head while recording or during playback.
- Reading bias current.
- Reading erase current.

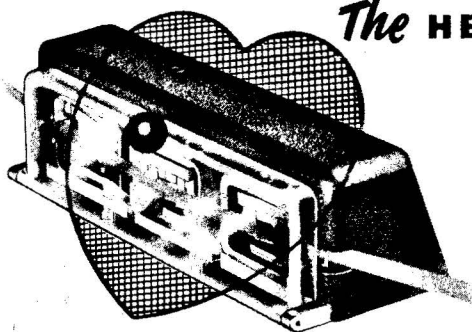
**PHONE MONITORING.** Phone monitor is provided for direct monitor of record input signal before or during recording, and monitor of recorded output signal from playback head while recording or during playback.

An A-B switch is incorporated in order that direct comparison can be made between the original program and the recorded program while the recording is being made. The same switch transfers the VU meter for level comparison and monitoring.

**MOUNTINGS.** Rack, Portable Case or Console.

**DIMENSIONS.** Mechanical unit is mounted on 15¼" panel for standard rack mounting. Electronic unit is mounted on 7" panel for standard rack mounting. Portable case holding both Mechanical unit and Electronics has over-all dimensions of 13½" high, 17" deep and 20" wide.

**WEIGHT.** Approximately 62 pounds for complete unit in Portable case. Shipping weight approx. 71 pounds.



*The* **HEART OF THE AMPEX**

Among the features that have made Ampex the most imitated recorder in America is the unit housing for the three magnetic heads. Here magnetic tape is brought to its optimum performance. Tape is "drop-in" threaded. Pyrex guides on gate of housing lift the tape away from magnetic heads during fast forward or rewind operations to prevent unnecessary head wear. The supersensitive playback head is multi-shielded for complete elimination of external fields.

Provides Simultaneous ERASE • RECORD • PLAYBACK

## Unrivalled AMPEX FIDELITY and PERFORMANCE make TAPE the Finest Recording Medium Known!

Ampex magnetic tape recording and reproducing created a new era in radio broadcasting and technical recording almost over night. Because of ability to produce tape of maximum range and fidelity, Ampex is recognized everywhere as the standard for comparison. Not the least of Ampex features is understandability and ease of operation by professional and non-professional users alike.

### AMPEX RECORDS TO 50,000 CYCLES

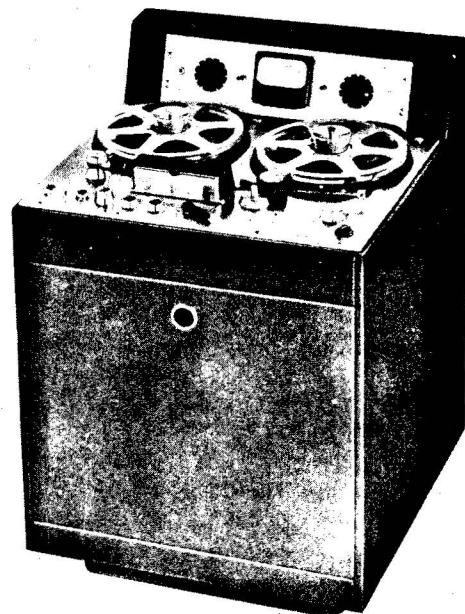
Standard model Ampex Recorders have ample range to record perfectly the overtones of all musical instruments. Every sound, tone and voice, remains natural to human ears. Special Ampex Recorders having frequency ranges beyond the audible spectrum are available; many have been built for telemetering applications up to 50,000 cycles!



**MODEL 200**

Ampex Model 200 is often referred to as the recorder that put Bing Crosby on tape. It was the first recorder built in the United States capable of exceeding requirements for broadcasting reproduced music and voice at true-to-life fidelity. Complete push-button operation. Unequalled for ease and speed in editing critical program material. Model 200 is in a class by itself and has set the standard by which all other tape recorders continue to be judged.

**MODEL 201** Conversion Kit incorporates latest Ampex developments for use on Model 200 units now in service. Model 201 is available also on order.



**MODEL 300-C**

Ampex Series 300 is available in console, rack or portable types. It is available in dual tape transport speed of 30 and 15 or 15 and 7½ inches per second. At 15 i.p.s. flutter and wow is well under one tenth of one percent r.m.s. measuring all flutter components from 0 to 300 cycles using a tone of 3,000 cycles. Series 300 can, on special order, be furnished for multi-channel recording requirements on other than quarter-inch wide tape.



*Unsurpassed FOR*

**RECORDING-BROADCASTING  
TELEMETERING  
INDUSTRIAL RECORDING  
MULTI-CHANNEL RECORDING  
LABORATORY RESEARCH  
AEROPHYSICAL RESEARCH**

# AMPEX.

**AMPEX ELECTRIC CORPORATION**

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